Taxonomic clarification of the *Lomandra odora* group (Xanthorrhoeaceae or Dasypogonaceae)

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Abstract

Macfarlane, T. D. Taxonomic clarification of the *Lomandra odora* group (Xanthorrhoeaceae or Dasypogonaceae). Nuytsia 5(1): 13-24 (1984). Three species are recognised in the *Lomandra odora* group, two of them new: *L. odora* (Endl.) Ewart, *L. nigricans* T. D. Macfarlane and *L. integra* T. D. Macfarlane. The name *L. endlicheri* (F. Muell.) Ewart is illegitimate; it has often been applied to each of the three species recognised here. Descriptions, photographs of specimens, distribution maps and a key to the three species are provided.

Introduction

This study arose from the preparation of the account of *Lomandra* for the "Flora of the Perth Region". An illegitimate name, *L. endlicheri* (F. Muell.) Ewart has long been in use, but simple substitution of a legitimate name is an insufficient remedy in view of the observed taxonomic heterogeneity. The group of closely related species dealt with here is restricted to south-western Australia and is referred to as the *L. odora* group.

Taxonomic studies of the *L. odora* group commenced when Endlicher (1846) assigned one specimen collected by Ludwig Preiss to *Xerotes tenuifolia* R. Br. and another Preiss specimen to the new species *X. odora*. Mueller (1874) recognised that the Preiss specimen identified by Endlicher as *X. tenuifolia* did not in fact belong to that species. Mueller further considered the Preiss specimens cited by Endlicher under these two names and some later collections to represent a single species, to which he gave the name *X. endlicheri* F. Muell., an illegitimate name because *X. odora* was cited as a synonym. Mueller thought that *X. rupestris* Endl. might possibly be a variety of *X. endlicheri*, but it has been excluded from the present study on the basis of a statement by Choo (1969) who, having examined the type, considered it a synonym of *L. collina* (R. Br.) Ewart (= *L. glauca* (R. Br.) Ewart subsp. *collina* (R. Br.) A. T. Lee).

Bentham (1878) recognised Endlicher's two taxa, *X. odora* (under which he cited the type and a specimen from Drummond's first collection not seen by me) and *X. endlicheri* (where the specimen identified by Endlicher as *X. tenuifolia* was cited along with several other specimens, most of them seen by me). The epithets of *X. odora* and *X. endlicheri* were also used (in the genus *Lomandra)* in the censuses and catalogues of Gardner (1930), Beard (1970) and Green (1981). Bentham, misled by the immature state of the type specimen of *L. odora*, described the species as having sessile male flowers, as did Blackall and Grieve (1954). Consequently specimens of the *L. odora* group, which have distinctly pedicellate male flowers when mature, have

usually been identified as *L. endlicheri* (described by Bentham as having pedicellate flowers). Choo (1969) recognised one species in the *L. odora* group as treated here, and applied to it the legitimate name *L. odora* with *L. endlicheri* consigned to its synonymy.

This study of the *L. odora* group has led to the conclusion that there exist three species, each represented among the specimens assigned to one species by Mueller (1874) and Choo (1969) while at least two of the species are represented among the specimens assigned by Bentham (1878) to *X. endlicheri*. The three species are *L. odora* (Endl.) Ewart, *L. nigricans* sp. nov. equivalent to Endlicher's '*X. tenuifolia* R. Br.', and *L. integra* sp. nov., a hitherto unrecognised species. They share the following unique combination of features: flowers white or greenish yellow and usually marked with purple or green toward the tip of at least the outer perianth segments, flowers strongly and pleasantly scented, arranged in verticillate clusters on a simple or branched inflorescence, pedicellate in the male and sessile in the female, leaves glabrous, capsules (where known) smooth, and a chromosome number of 2n = 16. There are three other species which share several of these features and in particular a similar inflorescence structure, but which lack perianth markings and strong flower scent and differ further in the features detailed below. *Lomandra multiflora* (R. Br.) J. Britten has 8-10 mm long pedicels compared with 2-7.5 mm pedicels in the *L. odora* group, the base of the flowers form a distinctive collar around the top of the narrower pedicel compared with the smooth transition of pedicel to flower in the *L. odora* group, and the arrangement of flower-subtending bracts is different in *L. multiflora* compared with the *L. odora* group (Stevens 1978). *Lomandra patens* Lee, much more robust than the *L. odora* group, has a male panicle which usually has more branch-bearing nodes with branches often secondarily branched (never seen in the *L. odora* group), male pedicels 0.3-1 mm long and a consistently paniculate female inflorescence (female inflorescences are never paniculate in *L. odora* and only sometimes so in *L. nigricans* and *L. integra*). Plants of *L. ordii* F. Muell. are very much larger than any in the *L. odora* group, with wider leaves (10-20 mm wide), they possess a very large peduncle 60-100 cm long and 4-10 mm diameter, the stamens of the inner whorl are inserted higher on the perianth than those of the outer whorl, and female flowers are shortly pedicellate. The species of the *L. odora* group differ from each other in features of the leaf bases, leaf dimensions, inflorescence dimensions, flower colour, flowering time and to some extent in soil preferences. All occur near Perth and extend varying distances southward, one species growing along the south coast as far east as Israelite Bay (Figure 5).

Herbarium specimens from herb. PERTH, MEL and UWA were employed in this study, including the relevant types and the majority of the specimens used by Mueller, Bentham and Choo. All three species were seen in the field. Detailed examination including measurements were made on at least 15 specimens of each species except that flower measurements are based on four specimens per species, these being sufficient to show lack of discriminatory value in flower dimensions. Chromosome numbers are based on unpublished information from G. J. Keighery. Voucher specimens for the chromosome counts, marked in the specimen citation lists by an asterisk (*), are lodged at PERTH.

Key to the species of the *Lomandra odora* group

1. Leaf bases shredding into fine fibres at least with age
   2. Leaf bases remaining white or pale (becoming grey in old leaves but not blackening), inflorescence less than half as long as leaves (of ungrazed and unburnt plants), usually 1/4-1/3 as long as

leaves; longest internode between flower clusters or branches of male inflorescences usually less than 1 cm long (range 0.4-1.8 cm); female inflorescence with 1-4 flower-bearing nodes; flowers greenish yellow to cream, sometimes with purple markings ..... 1. *L. odora*

2. Leaf bases blackening or turning dark brown except for a white zone occupying about 1-2 cm at bottom and sometimes the uppermost 1 cm of leaf base; inflorescence from about half to as long as leaves (of ungrazed and unburnt plants), longest internode between flower clusters or branches of male inflorescences usually more than 2 cm long (range 0.9-7 cm); female inflorescence with 4-12 flower-bearing nodes; flowers white with purple markings ..... 2. *L. nigricans*

1. Leaf bases membranous, intact or with very few longitudinal splits ..... 3. *L. integra*

1. **Lomandra odora** (Endl.) Ewart, Proc. Roy. Soc. Vict. 28: 219 (1916). (Figure 1)

Xerotes odora Endl. in Lehm., Pl. Preiss. 2: 50 (1846). *Type*: In turfoso-arenosis umbrosissimis inter gramina alta supra urbeculam Perth, *Preiss* 1529, 1 Sept. 1839 (iso: MEL 21078).

Xerotes endlicheri F. Muell., Fragm. 8: 205-206 (1874) nom. illeg., pro parte, as to the name *X. odora* Endl. cited in synonymy.

Plants consisting of 1-several tufts arising from a compact segmented horizontal rhizome, new tufts arising near the leaf bases by short (6-15 mm) horizontal extensions of rhizome, roots arising from rhizome at base of each tuft, new leaves often growing out from among previous season's leaves so that old leaf bases surround the tuft. Leaves fine, crowded on a short erect concealed stem, 10-54 cm long and 0.5-1.2 mm wide, all of similar length and width on each plant, semi-terete or plano-convex, occasionally very shallowly channelled on top, not ribbed, glabrous; leaf bases with margins at first membranous or scarious but at length breaking up into fine fibres which remain whitish; leaf apex obtuse. Male inflorescence a raceme or panicle of verticillate clusters of flowers, branches when present occurring only at lowest 1-2 nodes and accompanied by pedicellate flowers attached to same node, the branches inconspicuous, the longest usually 1 cm long, occasionally up to 2.5 cm, the inflorescence of fully grown plants (i.e. excluding plants regenerating after fire or grazing) less than half as long as leaves, usually 1/4-1/3 as long, the flower and branch clusters mostly closely spaced giving the whole inflorescence a compact cylindrical shape, sometimes the nodes more widely spaced, longest internode 0.4-1.8 cm long, usually 1 cm or less; cluster bracts conspicuous, rather herbaceous in texture, with broad base and long attenuated upper half, greenish, a little shorter to a little longer than pedicels of mature flowers. Female inflorescence a compact spike of 1-several verticillate clusters of flowers, of similar length to male inflorescence. Flowers scented, greenish-yellow to cream, sometimes with purple markings toward tip of outer perianth segments. Male flowers on spreading or erect 2-5 mm long pedicels, perianth spreading at anthesis and usually remaining open afterwards, 2.8-3.2 mm long, segments free or joined at base, the outer 3 segments markedly shorter or about equal to inner 3, slightly narrower and thinner, all segments thin and flexible in texture (not thick, fleshy and inflexible); stamens about equal in length, filaments shortly adnate to perianth, those opposite inner segments inserted slightly higher than other 3.

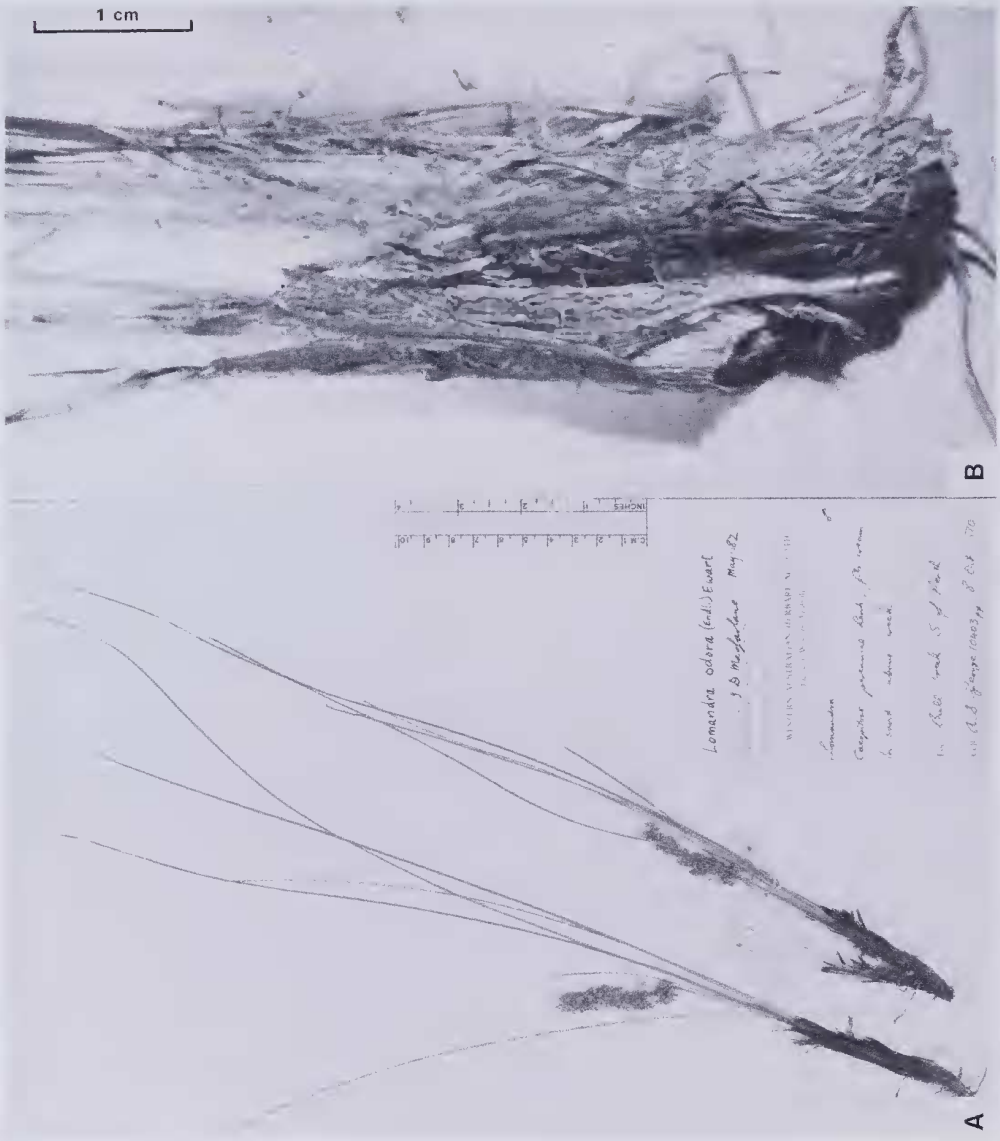

Figure 1. *Lomandra odora*. A—Whole plant. B— Leaf bases.

A from *A. S. George* 10403 (male); B from *R. Coveny* 8203.

Female flowers sessile; staminodes very small, inserted like stamens of male flowers; stigmas borne on a short but distinct style. Only young capsules seen, approximately spherical, green with pale vertical stripes along middle of valves. Chromosome number 2n = 16.

Additional specimens examined. WESTERN AUSTRALIA: Guildford, 31 July 1896, *H. W. Alcock* (PERTH); Canning Plain, Perth, Aug. 1902, *C. Andrews* (PERTH); Guildford, Aug. 1902, *C. Andrews* (PERTH); Gooseberry Hill, *F. M. Bennett* (UWA

3197); Canning Vale near Perth, 25 Sep. 1982, *A. Brown* (PERTH); Kewdale, *R. Coveny* 8203 (PERTH, NSW n.v.); Red Hill Road, Upper Swan, 30 Aug. 1978, *R. J. Cranfield* (PERTH); Palm Terrace, Forrestfield, 5 Oct. 1978, *R. J. Cranfield* (PERTH); Greenbushes, Aug. 1901, *Diels* (PERTH); Without precise locality, *Drummond* 816 (MEL 20535); Canning Plains, 28 Aug. 1902, *W. V. Fitzgerald* (PERTH); Gnangara, *C. A. Gardner* 7685 (PERTH); Bull Creek, S of Perth, *A. S. George* 10403 (PERTH, NSW, CANB); 11 mi [17.7 km] S of Mandurah, *G. J. Keighery* 168 (PERTH*); Wooroloo, *M. Koch* (MEL 20524); Mundaring, Aug. 1901, *Lambert* (PERTH); Bayswater, *A. Morrison* 16177 (MEL); W. Australia, *Oldfield* (MEL 20515); Benger, *R. D. Royce* 4833 (PERTH); Mandurah, *R. D. Royce* 5737 (PERTH); Elgin, *R. D. Royce* 5746 (PERTH); Cannington, Sep. 1916, *F.W. Wakefield* (PERTH).

Flowering period. Late August to early October.

Habitat. Grows in sandy soil in woodland of *Banksia* or Tuart *(Eucalyptus gomphocephala)* or at edges of swamps on the Coastal Plain, and found occasionally on the Darling Range where the habitat has not been recorded.

Distribution. (Figure 4) Western Australia, Perth south to Greenbushes (70 km SE of Busselton).

Notes. There is an additional specimen (MEL 20516) of *L. odora* (with a fragment of *L. caespitosa* (Benth.) Ewart) which is not accounted for in the above distribution summary and specimen list. It bears two labels, (1) W. Australia, Oldf. [Oldfield] and (2) Port Gregory, W. Australia, Oldf. For both *L. odora* and *L. caespitosa* Port Gregory, near Geraldton, would be a considerable northward range extension on the evidence of all other specimens. Unfortunately Oldfield's precise itineraries are unknown although he is known to have collected in the Geraldton area and further south. In view of the mixed taxa, the presence of two labels and the anomalous geographical location, I have decided to treat this Oldfield specimen as a doubtful record pending further collections of either *L. odora* or *L. caespitosa* from the Geraldton area.

2. **Lomandra nigricans** T. D. Macfarlane, sp. nov. (Figure 2)

Xerotes endlicheri F. Muell., Fragm. 8: 205-206 (1874), nom. illeg. pro parte, as to "Hay-River (Warburton)".

[*Xerotes tenuifolia* auct. non R. Br.: Endl. in Lehm., Pl. Preiss. 2: 49 (1846).]

Caespites rhizomate compacto segmentato exorientes; radices prope bases foliorum exorientes. Bases foliorum laceratae, nigrescentes praeter infimus 1-2 cm. Folia 23-68 cm longa, semper angusta. Inflorescentia mascula in paniculam vel racemum disposita, foliis aequantia vel dimidio breviora; fasciculi florum inferi plerumque distantes (internodio longissimo plerumque 2-7 cm longo), floribus verticillatis. Flores albi maculis purpureis ornati, odorati, pedicellati.

Typus: 11 mi NW of Northcliffe, *A. S. George* 2633 (holo: PERTH (male and female together)).

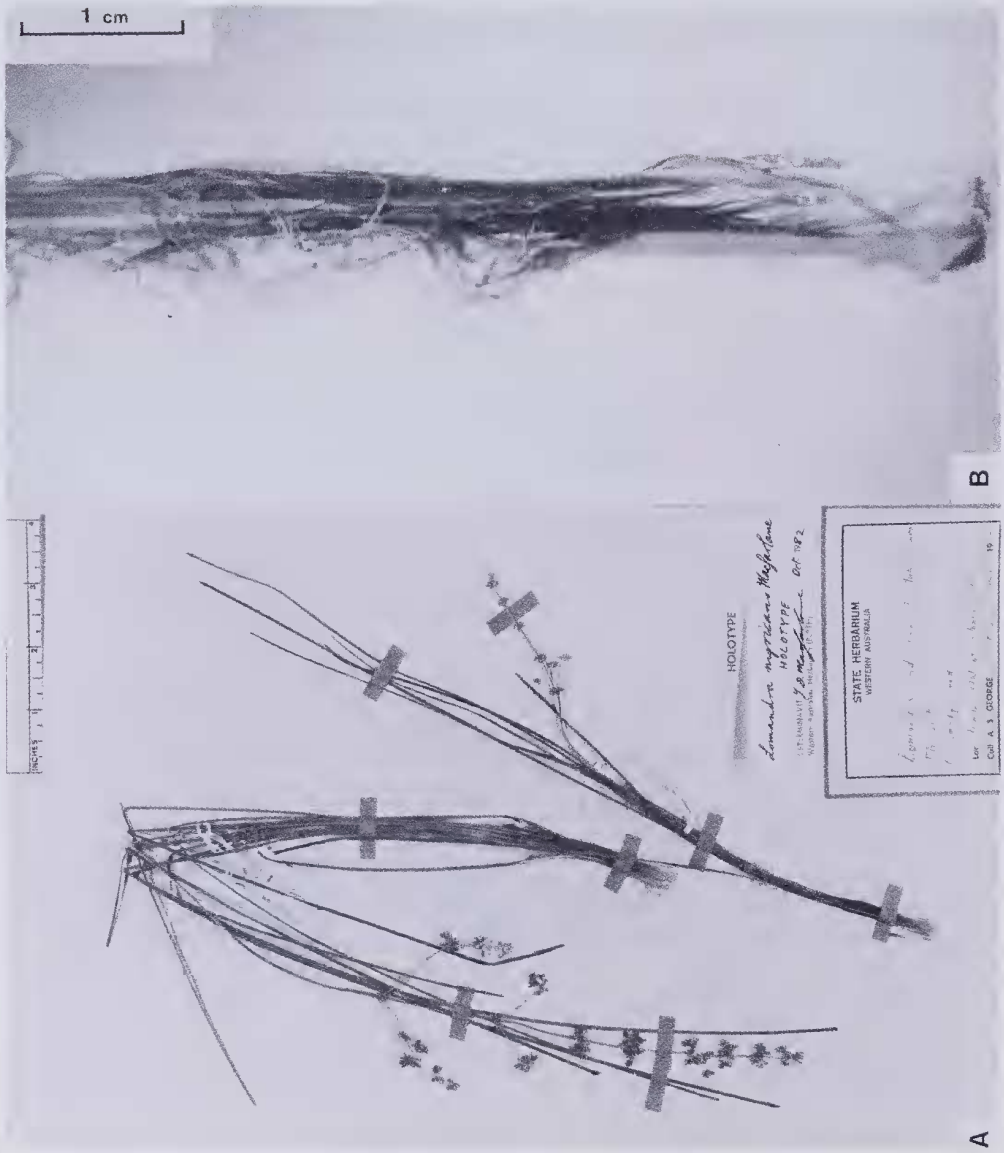

Figure 2. *Lomandra nigricans*. A—Whole plant, male on left, female on right. B—Leaf bases.

A from *A. S. George* 2633 (holotype); B from *G. J. Keighery* 221.

Plants consisting of 1-several tufts arising from a very compact segmented horizontal rhizome, tufts contiguous and rooting independently from near the leaf bases, new leaves often growing out from among previous season's leaves so that old leaf bases surround the tuft. Leaves rather coarse, crowded on a short, erect, concealed stem, 23-68 cm long and 0.8-2.7 mm wide, all of similar length and width on each plant (i.e. without long-narrow and short-broad leaves both present), semi-terete, plano-convex or shallowly channelled on top and convex beneath, smooth or slightly

ribbed, glabrous; leaf bases with margins membranous and white when young but soon shredding finely and turning dark brown, purple-black or black, the lowest 1-2 cm and sometimes the uppermost 1 cm remaining white; leaf apex obtuse. Male inflorescence a panicle or raceme of verticillate clusters of flowers, branches often at the lower 1-several nodes and usually accompanied by pedicellate flowers attached to same node, the longest branch measuring 1-9 cm (often more than 3 cm) long, the inflorescence about half to as long as the leaves, the flower and branch clusters (at least the lower few) usually well spaced, longest internode 0.9-7 cm long, usually more than 2 cm. Cluster bracts (except at lowest 1-2 nodes) thin in texture and inconspicuous, broad-based with short obtuse or erose apex, purplish, shorter than the pedicels of mature flowers. Female inflorescence a spike or paniculate spike of verticillate clusters of flowers, of similar length to male inflorescence. Flowers scented, white with purple markings on upper part of perianth segments, especially the outer 3. Male flowers on pedicels 2-7.5 mm long, perianth spreading at anthesis, otherwise more or less campanulate and often appearing rather pendulous after anthesis, 2.6-4.2 mm long, segments free or joined at the base, outer 3 segments slightly shorter (occasionally as long), narrower and thinner, all segments thin and flexible in texture (i.e. not thick, fleshy and inflexible); stamens about equal in length, filaments shortly adnate to perianth, those opposite inner segments inserted slightly higher than other 3. Female flowers sessile; staminodes very small, inserted like stamens of male flowers; stigmas borne on a short but distinct style. Capsules green or purplish green with pale vertical stripes along septa and in middle of valves, ovoid to depressed spherical, up to 8 mm long, not wrinkled. Chromosome number 2n=16.

Selected specimens examined. WESTERN AUSTRALIA: Muresk, *E. T. Bailey* 191 (PERTH); Jandakot, Aug. 1939, *W. E. Blackall* (PERTH); Stirling Range, below Bluff Knoll, *J. Chessell* & *A. McComb*, McC. 90 (UWA); Station Gully near the creek, on road to Yallingup, *Choo Ten Soo* 6655 (UWA); Jarrah Road, South Perth, *R. J. Cranfield* R62, R231 (PERTH); Canning Mills Road, Roleystone, *R. J. Cranfield* 295 (MEL, PERTH); Without precise locality, *Drummond* 815 (MEL 20532); Gingin, Sep. 1920, *C. A. Gardner* (PERTH); 26 mi [41.8 km] E of Jerramungup, *A. S. George* 4401 (PERTH); Near edge of Lough McNess, Yanchep National Park, *A. M. James* 312 (PERTH); East Mount Barren, July 1924, *A. Johnson* (PERTH); 20 km E of West Mount Barren, *G. J. Keighery* 158 (PERTH*); 7 km S of Collie on Mumballup Road, *G. J. Keighery* 197 (PERTH*); Lucky Bay, *G. J. Keighery* 216 (PERTH*); 30 km E of Israelite Bay on edge of scarp, *G. J. Keighery* 221 (PERTH*); 30 km W of Israelite Bay on edge of Wylie Scarp, *G. J. Keighery* 617 (PERTH*); Ruabon, *G. J. Keighery* 2361 (PERTH); 4.2 km along Hassell Highway from Albany-Borden Road, c. 16 km by road NE of Albany, *T. D. Macfarlane* 1166 (AD, BRI, CANB, NSW, PERTH); 3 mi [4.8 km] S of Mt Barker on Albany road, *R. Melville* & *R. D. Royce* sub Melville 4381 (K n.v., MEL); Subiaco, *A. Morrison* 10238 (MEL); About 7 mi [11.3 km] N of Albany, *K. Newbey* 2811 (PERTH); W. Australia, *Oldfield* (MEL 20527, 20528); Peaceful Bay, *S. Paust* 383 (PERTH); In arenosis circa urbeculam Perth, 15 Maji 1839, *Preiss* 1530 (MEL 20523, 20498); Cape Naturaliste, 11 June 1980, *M. H. Robinson* (PERTH); Darlington, *R. D. Royce* 3058 (PERTH); Upper Hay River, *M. Warburton* (MEL 20507, 20549); Bremer River, *Webb* (MEL 20506, 20514); Near Yarloop, *F. W. Went* 239 (PERTH); Walpole, *J. H. Willis* (MEL 20554).

Flowering period. Late May to August.

28267—3

Figure 3. *Lomandra integra*. A—Whole plant. B—Leaf bases.

Both from *T. D. Macfarlane* 281.

Habitat. Grows on grey or yellow sand in Jarrah (*Eucalyptus marginata*) and *Banksia* woodland on the Swan Coastal Plain, on lateritic soil in Jarrah forest on the Darling Range, and in moist black sand in swampy areas and in lateritic or sandy soils covered by shrubland along the south coast.

Distribution. (Figure 5) Western Australia, Gingin (70 km N of Perth) SE to Israelite Bay (185 km E of Esperance).

Notes. This species is sometimes to be found growing sympatrically with *L. odora* on the Swan Coastal Plain near Perth but flowers earlier.

The specific epithet *nigricans* refers to the blackening of the leaf bases.

3. **Lomandra integra** T. D. Macfarlane, sp. nov. (Figure 3)

Xerotes endlicheri F. Muell., Fragm. 8: 205-206 (1874), nom. illeg., pro parte, as to "Lake Muir (*Muir*), Blackwood-River (*McHard*)."

Caespites rhizomati elongato insidens, radicibus rhizomate basibus foliorum remotis exorientibus. Bases foliorum intactae vel parum fissae, scariosae, albae, flavidae vel pallido brunneae. Folia 7-58 cm longa, interdum brevia lataque, interdum longa angustatque. Inflorescentia mascula in paniculam vel racemum disposita, foliis brevioribus vel longioribus sed plerumque quam dimidio folia multo longiora; fasciculi florum inferi distantes (internodio longissimo plerumque 2-8 cm longo); floribus verticillatis. Flores albi, saepe maculis purpureis ornati, odorati, pedicellati.

Typus: About 5 km N along South Western Highway from Palgarup, 34°09′S, 116°12′E, *T. D. Macfarlane* 963 (holo: PERTH (male and female together); iso: CANB (male), NSW (male)).

Plants consisting of 1-several tufts arising from an elongated straight or somewhat knarled ascending rhizome which extends deep into soil below leaf hases, roots mostly arising from lower parts of rhizome distant from leaf bases, new leaves arising in new tufts from upper parts of rhizome and not surrounded by bases of old leaves. Leaves rather coarse, crowded on a short erect concealed stem, 7-58 cm long and 0.7-3 mm wide, some plants with all leaves short (7-c.15 cm) and broad or rarely narrow, some plants with all leaves long (more than 25 cm) and narrow, other plants with both short-broad and long-narrow leaves, shorter leaves usually flat, longer leaves flat, concave-convex or shallowly channelled on top and convex beneath, often strongly ridged especially when flat, glabrous; leaf base with membranous or scarious margins that remain intact or occasionally exhibit 1 or a few longitudinal splits but not shredding, remaining white or at most turning yellowish or pale brown; leaf apex obtuse. Male inflorescence a panicle or raceme of verticillate clusters of flowers, branches usually present at lower 1-several nodes and usually accompanied by pedicellate flowers attached to the same node, the longest branch measuring 0.5-12 cm (often more than 3 cm) long, the inflorescence shorter or longer than leaves but almost always more than half as long, the flower or branch clusters usually well spaced, longest internode 1-8 cm long, usually more than 2 cm; cluster bracts (except at lowest 1-2 nodes) thin in texture and inconspicuous, deltate or broadly triangular with an acute apex, green in the centre with whitish margins, shorter than to as long as pedicels of mature flowers. Female inflorescence a spike of verticillate clusters of flowers or a paniculate spike with one or more branches occurring at lower nodes, similar in length to male inflorescence. Flowers scented, white often with purple markings on upper part of perianth segments, especially the outer 3. Male flowers on pedicels 2-4 mm long, perianth spreading at anthesis, 2.7-3 mm long, all segments free or joined at base, outer 3 segments slightly shorter, narrower and thinner, all segments thin and flexible in texture (i.e. not thick, fleshy and inflexible); stamens about equal in length, filaments adnate to perianth for a small part of their length,

those opposite inner segments inserted slightly higher than other 3. Female flowers sessile; staminodes very small, inserted like stamens of male flowers; stigmas borne on a short but distinct style. Capsules not seen. Chromosome number 2n=16.

Additional specimens examined. WESTERN AUSTRALIA: Pemberton, 21 Oct. 1968, *A. M. Ashby* (PERTH); Augusta, *A.M.B. [Baird]*, (UWA 3186); Port Augusta near Geographe Bay, 1881, *Miss Bunbury* (MEL 20511); Augusta, on road to lighthouse, *Choo Ten Soo* 6657, (UWA); Blackwood River, *McHard* (MEL 20508, 20509, 20510); Carey Block, Sandy Hill Rd Area [c. 21 km W of Pemberton], 17 Sep. 1962, *A. J. Hart* (PERTH); Blackwood River, *Hester* (MEL 20512); Dwellingup, *G. Hos* 16A/2 (PERTH); Bow River, Nov. 1912, *S. W. Jackson* (PERTH); Jarrahdale, *G. J. Keighery* 26 (PERTH*); Pemberton area, 34°23′S, 115°59′E, *T. D. Macfarlane* 281 (PERTH, NSW); Type locality, burnt area, *T. D. Macfarlane* 964 (PERTH); Lake Muir, *Muir* (MEL 20522); Mouth of Ellen Brook on Caves Rd W of Gracetown, *S. Paust* 157 (PERTH); Karri Dale, W.R. (= and Warren River? Collected by *Walcott?* See Mueller, 1874 p. 205) (MEL 20536); Manjimup, *R. D. Royce* 2733 (PERTH); West bank of Walpole River on South Western Highway, *E. M. Scrymgeour* 1194 (PERTH); Mt William near Wagerup, *P. Vandermoezel* 19 (PERTH); Mornington Mills, *R.F.W. [Williams]* 47, 79 (UWA); Karri Dale, *Walcott* (MEL 20525, 20529); Mt Lindsay [Lindesay], *Webb* (MEL 20502); Canning Dam, *F. W. Went* 25 (PERTH); Parryville, 12 mi [19.3 km] W of Denmark, *J. H. Willis* (MEL 20552).

Flowering period. August to November.

Habitat. Occurs on lateritic soils in Jarrah *(Eucalyptus marginata)* forest and on sandy clay soils in Karri (*E. diversicolor*) forest.

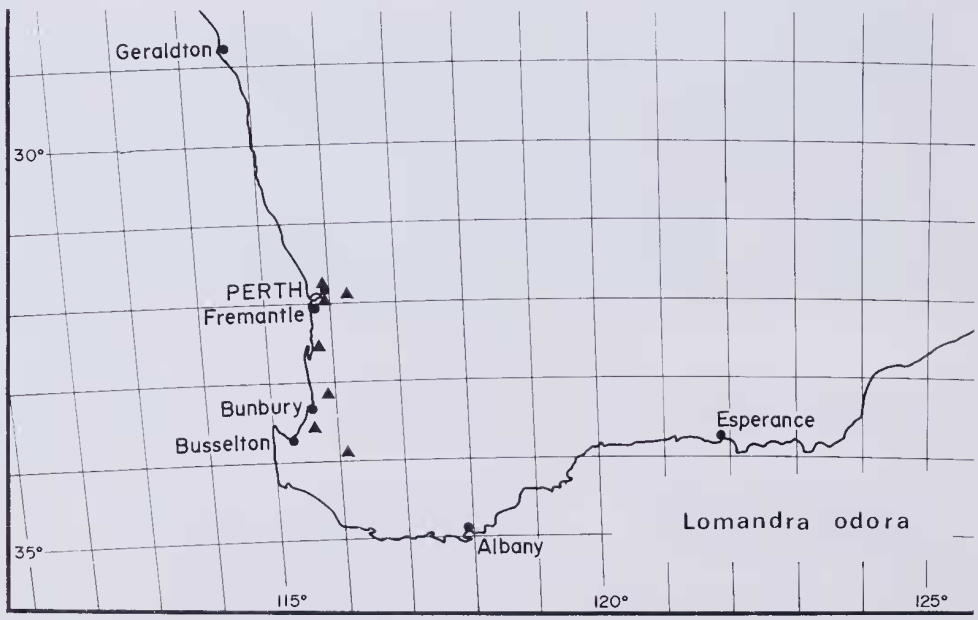

Figure 4. Distribution of *Lomandra odora*.

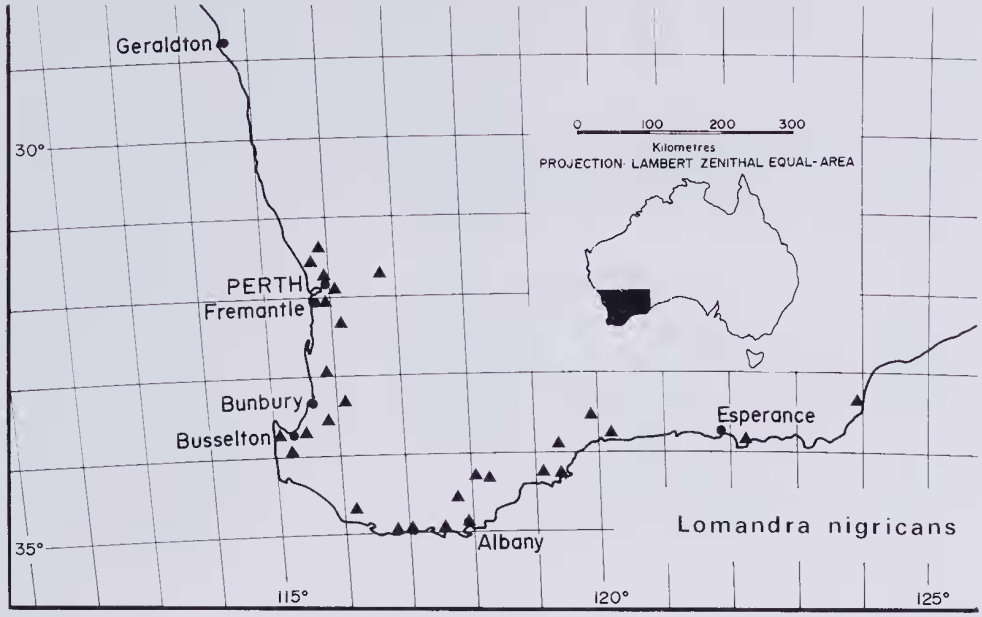

Figure 5. Distribution of *Lomandra nigricans*.

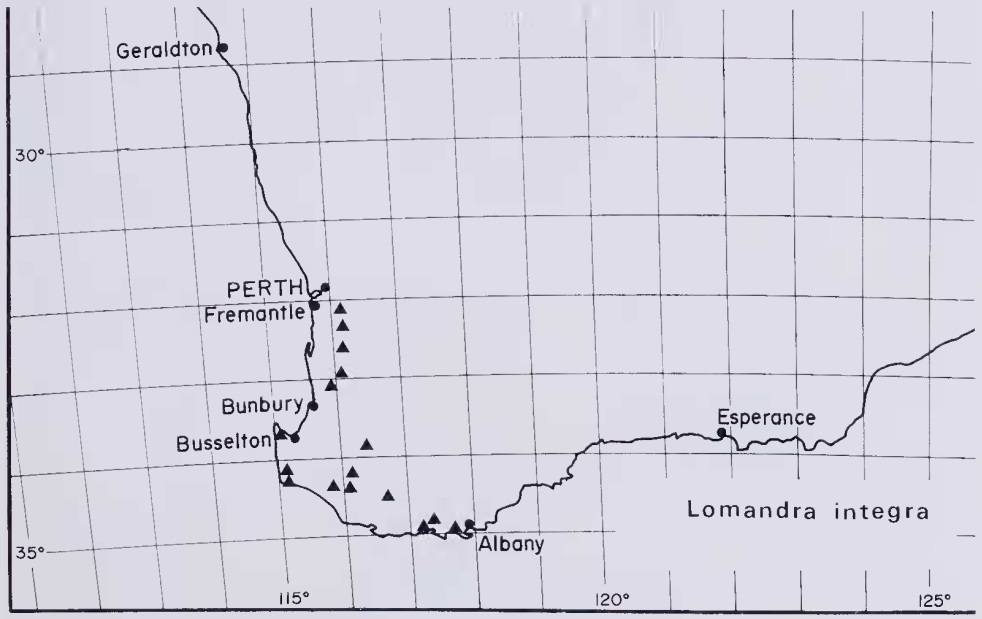

Figure 6. Distribution of *Lomandra integra*.

Distribution. (Figure 6) Western Australia, near Perth south to Albany, inland from the Swan Coastal Plain or on near coastal hills (e.g. in the Cape Leeuwin-Cape Naturaliste area and near Walpole).

Notes. The leaves of this species vary considerably in relative length and width, sometimes in the one collection (Figure 3). Shorter leaves, which are usually broader than long leaves, are evidently formed in the first season of regeneration after fire but perhaps also under certain other conditions as they are not found only on recently burnt plants.

There are very few female plants of *L. integra* to be found among the herbarium collections. Field observations indicate that in this species there is an excess of male plants in natural populations. This contrasts with the situation for most species of *Lomandra* where the females are less common than males in herbarium collections owing to their being different in form or otherwise less conspicuous to collectors but actually occurring with similar frequency to the males in nature.

Lomandra integra can be found growing sympatrically with *L. nigricans* on the Darling Range, but *L. integra* flowers later.

The specific epithet *integra* refers to the entire leaf bases.

Acknowledgements

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